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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,956	11/24/2003	David Alan College	18091 US	9405

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EXAMINER

LANGDON, EVAN H

ART UNIT

PAPER NUMBER

3654

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/723,956	COLLEGE, DAVID ALAN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Evan H. Langdon	3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-21 is/are pending in the application.
- 4a) Of the above claim(s) 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-14, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 11-14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boss et al. (US 5,024,720) in view of Liebeke (WO 02/080643 A1).

Boss et al discloses a tape feeder for advancing a component-carrying tape to present sequential electronic components disposed in the tape at a pitch for assembly, the tape feeder comprising:

a feed sprocket 40 and an encoder disc 50 operatively associated with each other and rotatably disposed on a common axis;

a motor 32 operatively connected to the feed sprocket 40 to repetitively rotate the feed sprocket over an angle corresponding to the pitch of the component-carrying tape; and

an encoder 52 disposed to read the encoder disk and provide a feedback signal indicating the angular position of the feed sprocket; and

the encoder disk has two rings of lines one ring 46 having a line spacing corresponding to the pitch of the component-carrying tape, and a second other ring 50 having a line spacing (col. 5, lines 42-59).

Liebeke teaches a ring of lines 13 having finely spaced lines less than the pitch of the component carrying tape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the second ring of lines of Boss to include lines spacing less than the pitch of the component carrying tape as suggested by Liebeke, to allow for finely tuned rotational adjustment of the drive wheel.

In regards to claims 2-3, Boss as modified by Liebeke teaches comprising a worm gear 42, 44 operatively associated with the feed sprocket 40 and encoder disc 50 and rotatably disposed on their common axis to impart angular velocity of the worm gear to the feed sprocket and the encoder disc, the worm shaft 36 coupled to the motor 32 and engaged with the worm gear 42.

In regards to claims 4 and 5, Boss as modified by Liebeke teaches the feed sprocket 40, the encoder disc 50 and the worm gear are attached around a central hub.

In regards to claims 6-9, Boss as modified by Liebeke teaches an upper feed track 22 and a housing 12, where the upper feed track 22 and the motor 32, feed sprocket 40, encoder 20 and a window are mounted in the housing, the window is positioned approximate the engagement of the feed sprocket 40 and the component-carrying tape.

In regards to claim 11, Boss as modified by Liebeke teaches the encoder disc has a ring of about the feed sprocket has a number of teeth 48 and the encoder disk has a ring of discrete lines 50 at essentially uniform angular spacing, the lines being of a substantially greater number than the number of teeth 48 on the feed sprocket (col. 5, lines 42-59).

In regards to claims 13 and 14, Boss as modified by Liebeke teaches the rotation on the worm bear is defined by ball bearings

With respect to claim 12, 19, 20, Boss as modified by Liebeke do not disclose specific values for the number of lines about the encoder disc. However, one of ordinary skill in the art is expected to routinely experiment with the parameters, especially when the specifics are not disclosed, so as to ascertain the optimum or workable ranges for a particular use. Accordingly, it would have been obvious through routine experimentation and optimization, for one of ordinary skill in the art to use about 2500 lines to more accurately move the sprocket wheel in very fine increments.

*Allowable Subject Matter*

Claim 12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Response to Arguments*

Applicant's arguments with respect to claims 1-9 and 11-14 have been considered but are moot in view of the new ground(s) of rejection. The new grounds of rejections were necessitated by applicant's amendment, e.g., claim 19, "the second ring has a number of lines which is at least 10 times greater than the number of teeth.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan H. Langdon whose telephone number is (571)272-6948. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**WILLIAM A. RIVERA**  
**PRIMARY EXAMINER**